Georgia Department of Public Health

Using the Targeted Assessment for Prevention (TAP) Strategy at a State and Facility Level

We Protect Lives.

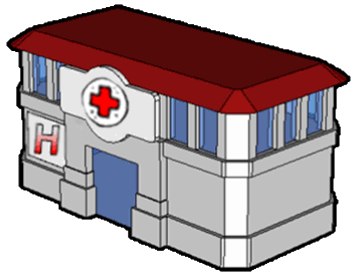
Overview

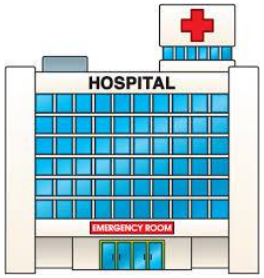
- Background
- Example TAP Reports
- TAP Report Components
- Create your own TAP Reports

Background

- The Targeted Assessment for Prevention (TAP) report presents healthcare-associated infection (HAI) data to assist facilities in assessing their performance and progress for self-improvement
- 2015 was the first year the Georgia Department of Public Health (DPH) created and sent TAP reports to Georgia facilities
- Reports are issued quarterly

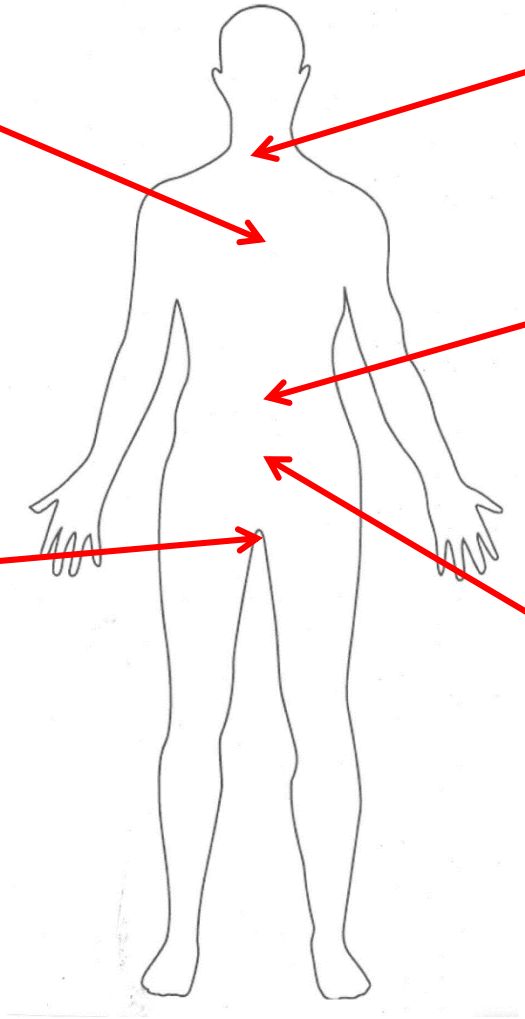
What Facilities Receive TAP Reports? What HAI Data do Facilities Report?





Acute Care Hospitals (ACH) & Oncology Hospitals (ONC)	Long-Term Acute Care Hospitals (LTACH)	Freestanding Inpatient Rehabilitation Facilities (IRF)	Critical Access Hospitals (CAH) & Children's Hospitals (CHLD)
CLABSI CAUTI CDI MRSA SSI	CLABSI CAUTI VAE CDI MRSA	CAUTI CDI MRSA	Data are provided on a voluntary basis

What HAI Data are Reported?
What Locations Report HAI Data?



CLABSI

- Adult, Pediatric, and Neonatal ICUs
- Adult and Pediatric LTAC ICUs and Wards

CAUTI

- Adult and Pediatric ICUs
- Adult and Pediatric LTAC ICUs and Wards

VAE

- LTAC ICUs and Wards

SSI

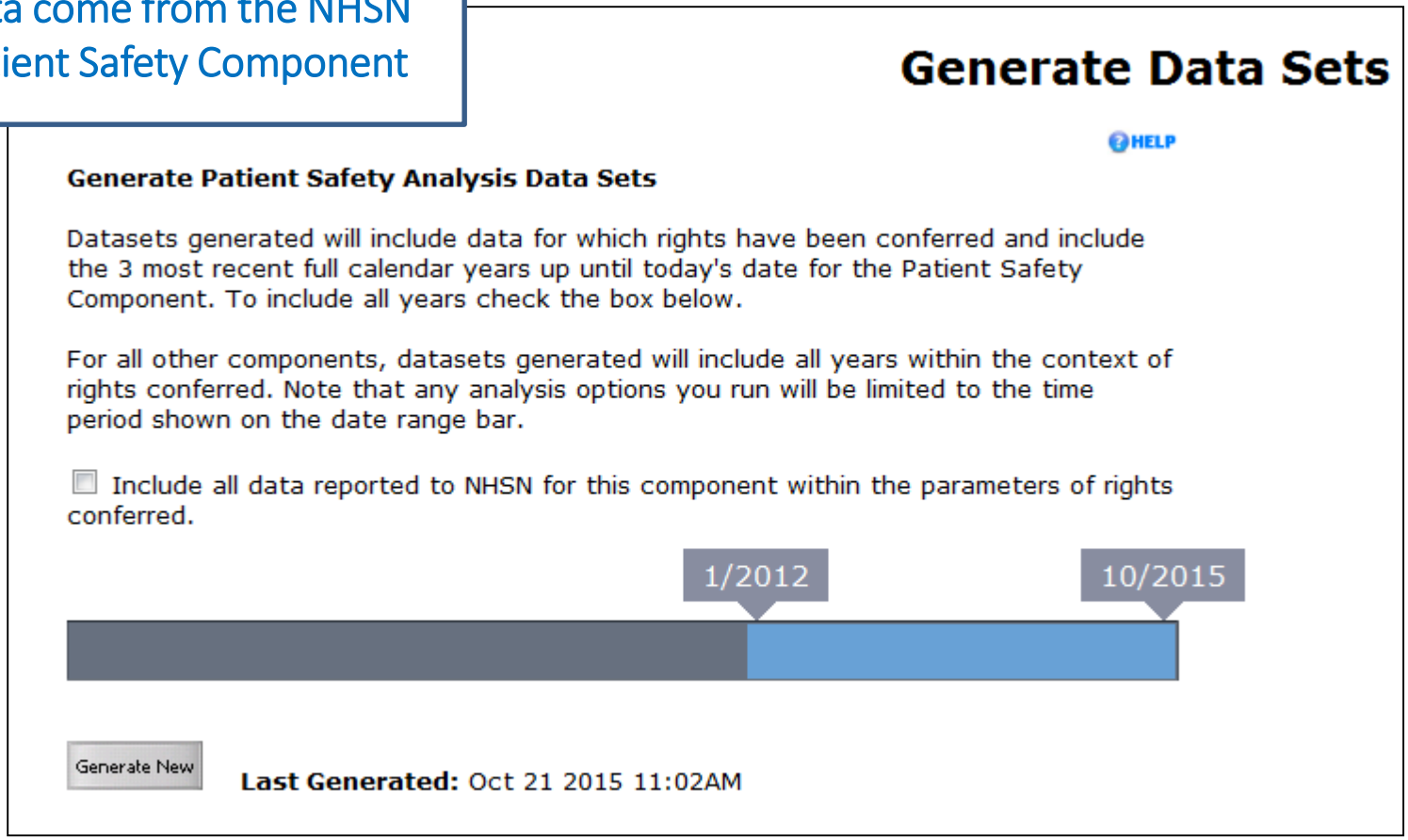
- Inpatient COLO Procedures
- Inpatient HYST Procedures

LabID

- Facility Wide Inpatient *C. difficile* events
- Facility Wide Inpatient MRSA events

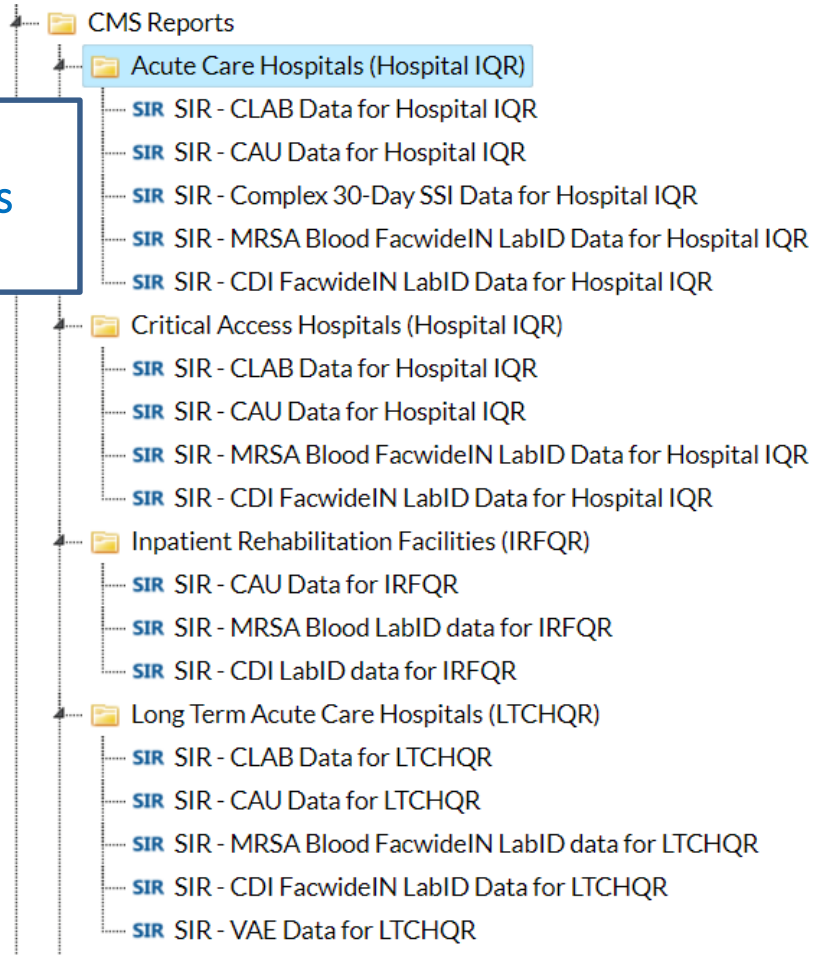
Where do the Data Come From?

Data come from the NHSN Patient Safety Component



What Datasets are Used?

We use CMS SIR Datasets



EXAMPLE TAP REPORTS

TAP Reports for Acute Care, Critical Access, and Children's Hospitals

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Healthcare Associated Infections (HAI) Progress Report, October 2016-September 2017

Sample data is presented below:

Sample Hospital, 12345

HAI		Your Facility's Data					Comparison Data				Cost Data
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia ACH SIR	Estimated Cost per Event
CAUTI	ICU	30	42.6	0.70	0.69, 1.21	NOT SIG	0.75	-	24 of 24	0.90	$603 - $1,189
	WARD	11	15.8	0.70	0.58, 2.00	NOT SIG	0.75	-	32 of 32	0.88	
CLABSI	ICU	35	17.1	2.05	1.55, 2.91	SIG H	0.50	27	2 of 33	1.12	$30,919 - $65,245
	NICU	5	4.4	1.14	0.72, 3.70	NOT SIG	0.50	3	4 of 16	0.80	
	WARD	20	9.1	2.21	1.30, 3.21	SIG H	0.50	16	1 of 40	0.86	
LabID Events	CDI	50	60.1	0.83	0.59, 0.88	SIG L	0.70	50	5 of 57	0.75	$9,118 - $13,574
	MRSA	17	15.8	1.26	0.76, 1.98	NOT SIG	0.50	11	3 of 44	0.99	Not Available
SSI	COLO	12	12.2	0.98	0.59, 1.65	NOT SIG	0.70	4	7 of 27	0.84	$18,902 - $22,667
	HYST	1	3.9	0.26	0.15, 1.56	SIG L	0.70	-	13 of 13	0.90	

TAP Reports for Long-Term Acute Care Hospitals

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Healthcare Associated Infections (HAI) Progress Report, October 2016-September 2017

Data Source: CDC's National Healthcare Safety Network (NHSN) retrieved 2/20/2018

Example Long-Term Acute Care Hospital, 12345

HAI		Your Facility's Data					Comparison Data				Cost Data
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia LTACH SIR	Estimated Cost per Event
CAUTI	LTACH	22	15.6	1.41	1.34, 1.59	SIG H	0.75	8	5 of 14	1.44	$603 - $1,189
CLABSI	LTACH	12	10.6	1.13	0.56, 1.58	NOT SIG	0.50	7	4 of 14	1.13	$30,919 - $65,245
VAE	LTACH	9	8.5	1.06	0.77, 1.64	NOT SIG	0.75	3	6 of 7	1.01	$11,897 - $25,072
LabID	CDI	15	22.5	0.67	0.39, 0.94	SIG L	0.70	-	6 of 6	0.66	$9,118 - $13,574
Events	MRSA	2	3.4	0.59	0.51, 1.09	NOT SIG	0.50	1	8 of 9	0.71	Not Available

TAP Reports for Inpatient Rehabilitation Facilities

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Healthcare Associated Infections (HAI) Progress Report, October 2016-September 2017

Data Source: CDC's National Healthcare Safety Network (NHSN) retrieved 2/20/2018

Example Inpatient Rehabilitation Facility, 12345

HAI		Your Facility's Data					Comparison Data			Cost Data
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia IRF SIR	Estimated Cost per Event
CAUTI	IRF	1	1.8	0.56	0.32, 1.45	NOT SIG	0.75	-	0.57	$603 - $1,189
LabID Events	CDI	3	4.2	0.71	0.51, 0.90	SIG L	0.70	1	0.35	$9,118 - $13,574
	MRSA	0	<1	-	-	No SIR	0.50	-	0.84	Not Available

TAP Reports for Oncology Hospitals

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Healthcare Associated Infections (HAI) Progress Report, October 2016-September 2017

Data Source: CDC's National Healthcare Safety Network (NHSN) retrieved 2/20/2018

Example Oncology Facility, 12345

HAI		Your Facility's Data					Comparison Data			Cost Data
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia ACH SIR	Estimated Cost per Event
CAUTI	ONC ICU	1	<1	-	-	No SIR	0.75	-	0.90	$603 - $1,189
	ONC STEP	1	1.1	0.91	0.15, 0.99	SIG L	0.75	-	-	
	ONC WARD	0	<1	-	-	No SIR	0.75	-	0.88	
CLABSI	ONC ICU	0	<1	-	-	No SIR	0.75	-	1.12	$30,919 - $65,245
	ONC STEP	1	2.3	0.43	0.05, 4.47	NOT SIG	0.50	-	1.43	
	ONC WARD	2	3.4	0.59	0.10, 1.88	NOT SIG	0.50	1	0.86	
LabID Events	CDI	5	8.1	0.62	0.01, 0.98	SIG L	0.50	0	0.75	$9,118 - $13,574
	MRSA	0	<1	-	-	No SIR	0.70	-	0.99	Not Available
SSI	COLO	2	1.9	1.05	0.25, 2.68	NOT SIG	0.50	2	0.84	$18,902 - $22,667
	HYST	1	<1	-	-	No SIR	0.70	-	0.90	

TAP REPORT COMPONENTS

Several Comparisons in the Report

Your Facility's Data					Comparison Data			
Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia ACH SIR
8	9.7	0.82	0.75, 0.98	SIG L	0.75	-	24 of 24	0.90
5	5.1	0.98	0.84, 1.12	NOT SIG	0.75	2	19 of 32	0.88
7	6.4	1.09	0.98, 1.65	NOT SIG	0.50	4	14 of 33	1.12
-	-	-	-	N/A	0.00	-	-	0.80
4	4.9	0.82	0.80, 0.94	SIG L	0.50	2	24 of 40	0.86
31	23.6	1.31	1.12, 1.51	SIG H	0.70	15	20 of 57	0.75
5	5.4	0.93	0.84, 1.16	NOT SIG	0.50	3	19 of 44	0.99
4	5.8	0.69	0.55, 0.79	SIG L	0.70	-	27 of 27	0.84
2	1.9	1.05	0.89, 1.18	NOT SIG	0.70	1	12 of 13	0.90

Comparison to national baselines

Comparison to HHS Goals

Comparison to Georgia's performance

Comparison to the National Baseline with the Standardized Infection Ratio

$$\text{Standardized Infection Ratio (SIR)} = \frac{\text{\# of Infections Observed}}{\text{\# of Infections Predicted}}$$

Examples:

- Your facility observed 10 infections and was predicted to have 5. The SIR is 10 ÷ 5 = 2.0. This means your facility had 2 times the number of infections predicted.
- Your facility observed 10 infections and was predicted to have 20. The SIR is 10 ÷ 20 = 0.5. This means your facility had ½ the number of infections predicted.

Comparison to the SIR Goal with the Number Needed to Prevent

Number of Infections Needed to Prevent (NNTP) =
# of Infections Observed – (SIR Goal∗ # of Infections Predicted)

Examples:

- Your SIR goal is 0.75. Your facility observed 10 infections and was predicted to have 5. The NNTP is 10 - (0.75*5) = 10 - 3.75 = 6.25. This means your facility needs to prevent about 6 infections to reach the SIR goal of 0.75.
- Your SIR goal is 0.50. Your facility observed 10 infections and was predicted to have 20. The NNTP is 10 - (0.5*20) = 10 - 10 = 0. This means your facility has already reached the SIR goal of 0.5

Why Use NNTP?

- Actionable
  - More intuitive than SIR
- Perspective
  - Brings focus to the patient level
- Customizable Goals
  - National baseline data are historical

What Information is Used to Identify My Facility?

- The name of your facility as it appears in NHSN
  - Note: efforts were made to update these names if changes in facility names were known
  - If you would like for your facility reports to display a different name, please update NHSN to reflect this
- Your facility's NHSN orgID number
  - If multiple facilities share one NHSN orgID number, all applicable data for those facilities are combined in a single report

Standardized Infection Ratio

$$\text{Standardized Infection Ratio (SIR)} = \frac{\text{\# of Infections Observed}}{\text{\# of Infections Predicted}}$$

- **Interpreting the SIR**
  - If the SIR is **less than 1.0**, you had **fewer** infections than expected
  - If the SIR is **equal to 1.0**, you had the **predicted** number of infections
  - If the SIR is **greater than 1.0**, you had **more** infections than expected

- **The number of infections predicted is based on national baseline data collected by CDC**
  - These data were collected in 2015

Why is my SIR "-"?

HAI		Your Facility's Data					Comparison Data			
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia ACH SIR
CAUTI	ICU	1	2.6	0.39	0.02, 1.90	NOT SIG	0.75	-	24 of 24	0.90
	WARD	4	2.2	1.82	0.58, 4.38	NOT SIG	0.75	3	14 of 32	0.88
CLABSI	ICU	0	2.1	0.00	0.00, 1.45	NOT SIG	0.50	-	33 of 33	1.12
	NICU	-	-	-	-	N/A	0.00	-	-	0.80
	WARD	1	1.8	0.56	0.03, 2.77	NOT SIG	0.50	1	37 of 40	0.86
LabID Events	CDI	8	16.9	0.47	0.22, 0.90	SIG L	0.70	-	57 of 57	0.75
	MRSA	0	1.4	0.00	0.00, 2.18	NOT SIG	0.50	-	44 of 44	0.99
SSI	COLO	0	<1	-	-	No SIR	0.70	-	No SIR	0.84
	HYST	0	<1	-	-	No SIR	0.70	-	No SIR	0.90

Why is my SIR "-"?

- Your facility did not meet the requirements for reporting (the SIR is Not Applicable (N/A))
  - For example, your facility does not have a NICU. Your NICU SIR will be "-"
- Your number of infections expected was less than 1.0 so the SIR could not be calculated. There is No SIR
  - For example, you observed 2 CLABSI and were expected to have 0.25 CLABSI. Your CLABSI SIR will be "-"
- Since there is no SIR value, the 95% Confidence interval and NNTP will also be "-"

What is the SIR Interpretation?

- The data downloaded from NHSN provide the 95% confidence interval and the p-value for the SIR
  - These determine if your SIR was significantly different from what was predicted based on **national baselines**
  - If your SIR is SIG L the number of infections observed was significantly lower than predicted
  - If your SIR is SIG H the number of infections observed was significantly higher than predicted
  - If your SIR is **NOT SIG**, the number of infections observed was not significantly different than predicted

Why is my SIR Interpretation "N/A" or "No SIR?"

HAI		Your Facility's Data					Comparison Data			
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia ACH SIR
CAUTI	ICU	1	2.6	0.39	0.02, 1.90	NOT SIG	0.75	-	24 of 24	0.90
	WARD	4	2.2	1.82	0.58, 4.38	NOT SIG	0.75	3	14 of 32	0.88
CLABSI	ICU	0	2.1	0.00	0.00, 1.45	NOT SIG	0.50	-	33 of 33	1.12
	NICU	-	-	-	-	N/A	0.00	-	-	0.80
	WARD	1	1.8	0.56	0.03, 2.77	NOT SIG	0.50	1	37 of 40	0.86
LabID Events	CDI	8	16.9	0.47	0.22, 0.90	SIG L	0.70	-	57 of 57	0.75
	MRSA	0	1.4	0.00	0.00, 2.18	NOT SIG	0.50	-	44 of 44	0.99
SSI	COLO	0	<1	-	-	No SIR	0.70	-	No SIR	0.84
	HYST	0	<1	-	-	No SIR	0.70	-	No SIR	0.90

Why is my SIR Interpretation "N/A" or "No SIR?"

- **If your SIR Interpretation is "N/A"**
  - Your facility did not meet the requirements for reporting (the SIR is **Not Applicable**)
  - Because the SIR was Not Applicable, the 95% confidence interval and the p-value were Not Applicable
- **If your SIR Interpretation is "No SIR"**
  - Your number of infections expected was less than 1.0 so the SIR could not be calculated and there is **No SIR**
  - Because there is no SIR, the 95% confidence interval and the p-value were Not Calculated

Why is my observed value "-"?

HAI		Your Facility's Data					Comparison Data			
HAI	Unit/Type	Observed	Predicted	SIR	95% CI	Interpretation	HHS Goal	NNTP for HHS Goal	Georgia Rank	Georgia ACH SIR
CAUTI	ICU	1	2.6	0.39	0.02, 1.90	NOT SIG	0.75	-	24 of 24	0.90
	WARD	4	2.2	1.82	0.58, 4.38	NOT SIG	0.75	3	14 of 32	0.88
CLABSI	ICU	0	2.1	0.00	0.00, 1.45	NOT SIG	0.50	-	33 of 33	1.12
	NICU	-	-	-	-	N/A	0.00	-	-	0.80
	WARD	1	1.8	0.56	0.03, 2.77	NOT SIG	0.50	1	37 of 40	0.86
LabID Events	CDI	8	16.9	0.47	0.22, 0.90	SIG L	0.70	-	57 of 57	0.75
	MRSA	0	1.4	0.00	0.00, 2.18	NOT SIG	0.50	-	44 of 44	0.99
SSI	COLO	0	<1	-	-	No SIR	0.70	-	No SIR	0.84
	HYST	0	<1	-	-	No SIR	0.70	-	No SIR	0.90

Why is my observed value "-"?

- Your facility did not meet the requirements for reporting
  - *Note: this is different from having 0 infections*
  - For example, your facility did not use central lines in your ICU. Your observed value for ICU CLABSI is "-"

What is the Number Needed to Prevent? What are the SIR Goals?

Number of Infections Needed to Prevent (NNTP) =
# of Infections Observed – (SIR Goal* # of Infections Predicted)

- **Even if you had fewer infections observed than expected, you may still have a NNTP**
  - This is because the 2013 HHS SIR goals are lower than the national baseline
- **The 2020 HHS SIR goals are:**
  - 0.5 for CLABSI
  - 0.70 for CDI
  - 0.75 for CAUTI, COLO, HYST, and MRSA

What is the Georgia SIR?

- **Georgia's SIR represents the overall state performance for each HAI**

$$\text{State SIR} = \frac{\text{Total \# of Infections Observed for All Applicable Facilities}}{\text{Total \# of Infections Expected for All Applicable Facilities}}$$

What is the Georgia Rank?

- **For each HAI, facilities were ranked by their NNTP**
- Facilities with the highest NNTP will rank highest, with 1 being the highest

Where do the Estimated Costs per Event Come From?

- Zimlichman E, Henderson D, Tamir O, et al. Health Care–Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System. *JAMA Intern Med*. 2013;173(22):2039-2046. doi:10.1001/jamainternmed.2013.9763
  - Cost data are presented as a range of attributable costs per case adjusted to 2012 dollars
  - Link to article: http://archinte.jamanetwork.com/article.aspx?articleid=1733452

From: **Health Care–Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System**

JAMA Intern Med. 2013;173(22):2039-2046. doi:10.1001/jamainternmed.2013.9763

Table 1. Estimates of Costs and LOS Attributed to the 5 Major Health Care–Associated Infections for the US Adult Inpatient Population at Acute Care Hospitals[a]

Health Care-Associated Infection Type	Cost, 2012 $US	LOS (as Total, ICU), d
Surgical site infections	20 785 (18 902-22 667)[b]	11.2 (10.5-11.9)[b]
MRSA	42 300 (4005-82 670)[b]	23.0 (14.3-31.7)[b]
Central line-associated bloodstream infections	45 814 (30 919-65 245)[b,c]	10.4, 6.9 (6.9-15.2, 3.5-9.6)[b,c]
MRSA	58 614 (16 760-174 755)[c]	15.7 (7.9-36.5)[c]
Catheter-associated urinary tract infections	896 (603-1189)[b]	NR
Ventilator-associated pneumonia	40 144 (36 286-44 220)[b,c]	13.1, 8.4 (11.9-14.3, 7.8-9.0)[b,c]
Clostridium difficile infections	11 285 (9118-13 574)[b]	3.3 (2.7-3.8)[b]

Abbreviations: ICU, intensive care unit; LOS, length of hospital stay; MRSA, methicillin-resistant *Staphylococcus aureus*; NR, not reported.

[a] Data are reported as mean (95% CI) values.

[b] Estimates obtained from literature and 100 000-trial Monte Carlo simulations using triangular distribution.

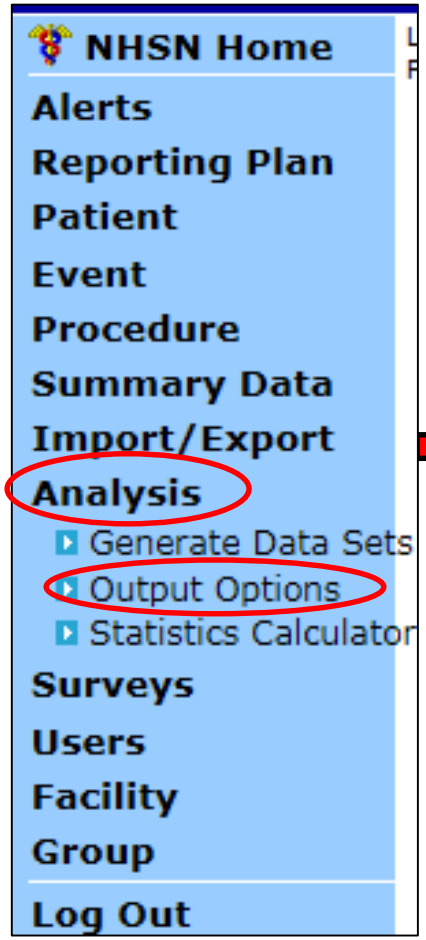
[c] Estimates obtained from literature and 100 000-trial Monte Carlo simulations, using general distribution.

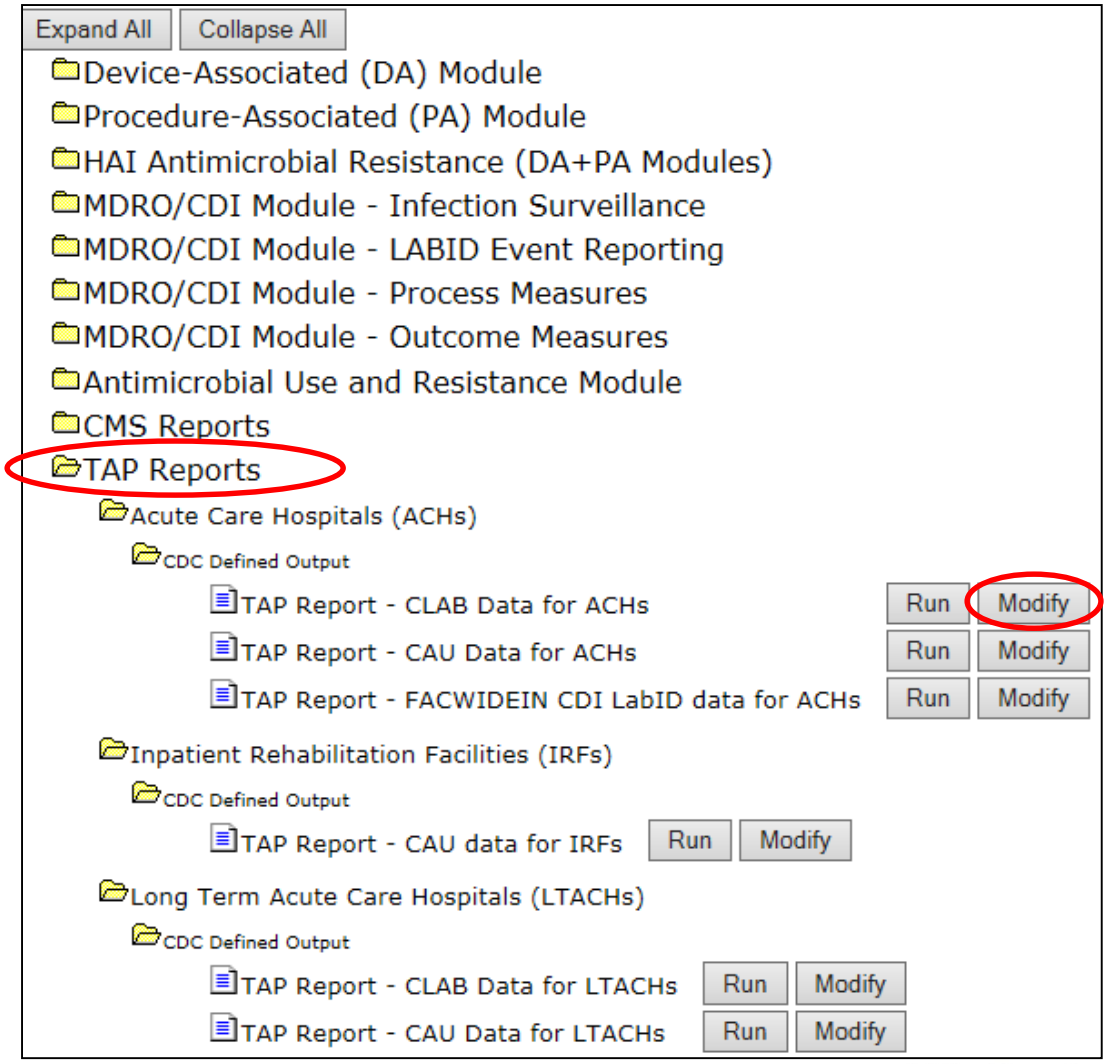
Table Title:

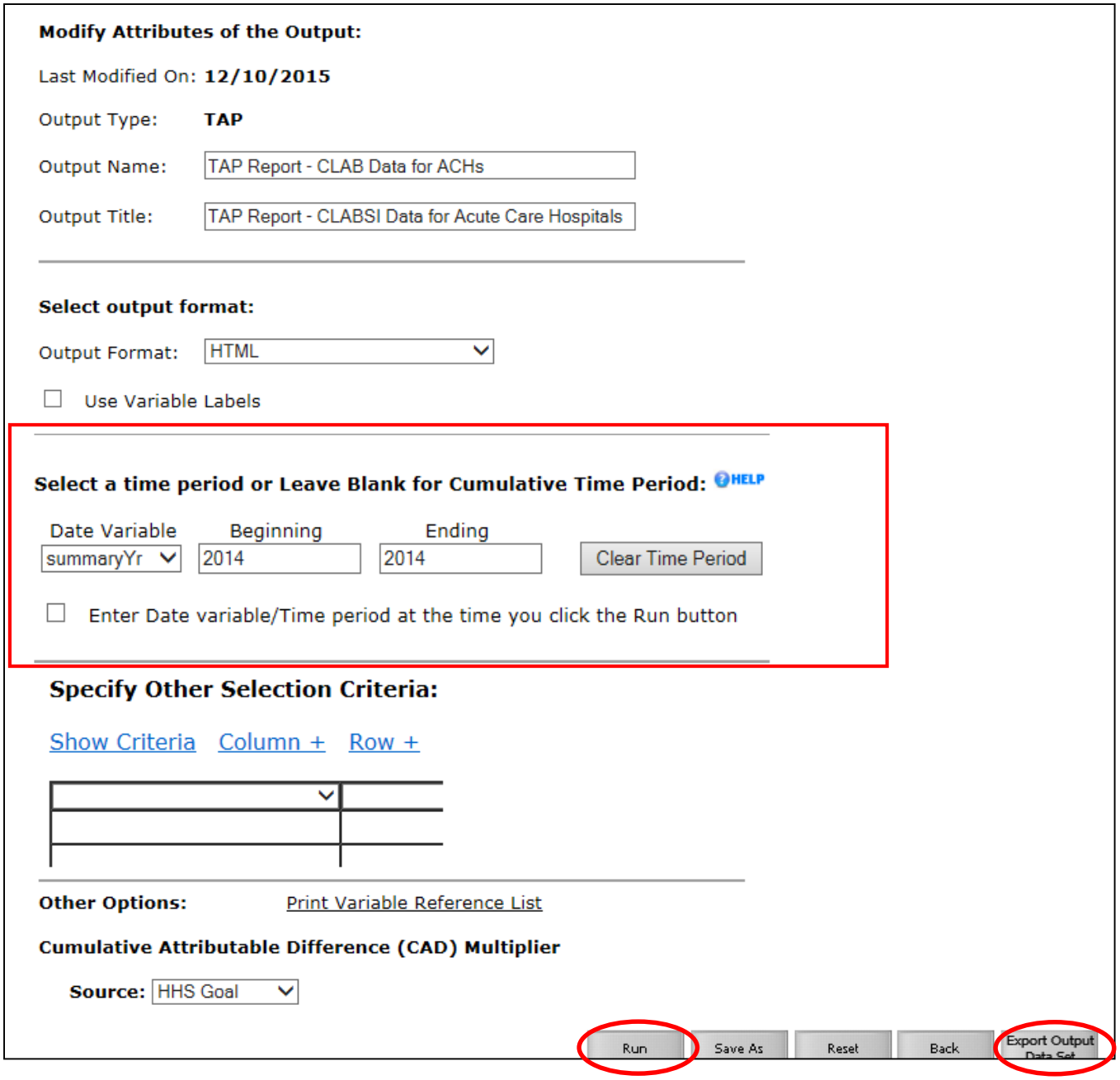
Estimates of Costs and LOS Attributed to the 5 Major Health Care–Associated Infections for the US Adult Inpatient Population at Acute Care Hospitals[a]

CREATE YOUR OWN TAP REPORT

Create Your Own TAP Report



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Output Title: TAP Report - CLABSI Data for Acute Care Hospitals
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Output Format: HTML
Use Variable Labels
Select a time period or Leave Blank for Cumulative Time Period:
HELP
Date Variable
Beginning
Ending
summaryYr
2014
2014
Clear Time Period
Enter Date variable/Time period at the time you click the Run button
Specify Other Selection Criteria:
Show Criteria
Column +
Row +
Other Options:
Print Variable Reference List
Cumulative Attributable Difference (CAD) Multiplier
Source: HHS Goal
Run
Save As
Reset
Back
Export Output Data Set

Questions and Comments

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